

**Before the  
Federal Communications Commission  
Washington, D.C. 20554**

In the Matter of	)	
	)	
KONGSBERG SEATEX AS	)	WT Docket No. 16-413
	)	
Request for Waiver of Part 80 and Part 90 of the	)	
Commission's Rules	)	

**ORDER**

**Adopted: November 15, 2017**

**Released: November 16, 2017**

By the Deputy Chief, Mobility Division, Wireless Telecommunications Bureau:

1. *Introduction.* This *Order* addresses a request filed by Kongsberg Seatex AS (Kongsberg) for waiver of the Commission's rules to permit certification and use of a maritime broadband radio (MBR) in either the 5460-5660 MHz band or the 5850-5925 MHz band.<sup>1</sup> For the reasons set forth below, we deny the waiver request.

2. *Background.* Kongsberg manufactures the MBR, which is a real-time, phased array digital radio that operates in the 5 GHz band and offers high-speed reliable data transfer between vessels and structures at sea.<sup>2</sup> The system operates in duplex mode on a single 20-megahertz frequency with data throughput of up to 15 Mbps IP connectivity between multiple stations at ranges in excess of 50 kilometers.<sup>3</sup> The maximum output power is four watts and the maximum effective isotropic radiated power (EIRP) is 60 dBm.<sup>4</sup> Kongsberg states that the MBR has been deployed in Canada, Europe, Asia, and South America, with no incidents of interference, for uses such as hydrographic surveys and offshore oil and gas operations.<sup>5</sup> Abroad, the MBR has utilized center frequencies 5180 MHz, 5230 MHz, 5826 MHz, and 5890 MHz.<sup>6</sup>

3. Kongsberg seeks a waiver to permit equipment authorization and use of the MBR in United States waters on two channels (to allow the operation of two separate networks in the same area) in the 5460-5660 MHz or 5850-5925 MHz bands. A waiver is necessary because the Commission's rules do not provide for the certification and use of the MBR in these frequency bands. The 5460-5650 MHz

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<sup>1</sup> Request of Kongsberg Seatex AS for Waiver (dated Nov. 9, 2016) (Petition). Kongsberg requests a waiver of 47 CFR § 80.375(d) and 47 CFR part 90 subpart M.

<sup>2</sup> Petition at 1.

<sup>3</sup> *Id.*

<sup>4</sup> *Id.* The system utilizes an integrated antenna array with steerable antenna lobes. The tailored radiation patterns are optimized to reduce interference and to allow operation at lower transmit powers than would be necessary if more conventional fixed antennas were deployed. The MBR system also optimizes the link budget under different conditions and uses adaptive power control to regulate the output power to the minimum necessary for communications. *Id.* at MBR Technical Description at 1.

<sup>5</sup> *Id.* at 1.

<sup>6</sup> *Id.* at 2.

band is allocated for non-Federal radiolocation, radionavigation, meteorological aids, Earth exploration-satellite, and space research,<sup>7</sup> and is designated for, *inter alia*, marine radiodetermination.<sup>8</sup> The 5850-5925 MHz band is allocated on a primary basis for non-Federal fixed-satellite and mobile services,<sup>9</sup> and is designated for the Dedicated Short-Range Communications (DSRC) service, which uses radio techniques to transmit data over short distances vehicle-to-vehicle and between vehicles and roadside infrastructure for operations related to traffic safety and other intelligent transportation service applications.<sup>10</sup>

4. The Wireless Telecommunications Bureau sought comment on the waiver request.<sup>11</sup> The Association of Global Automakers, Inc. and the Alliance of Automobile Manufacturers (Commenters) jointly filed comments opposing use of the 5850-5925 MHz band.<sup>12</sup> Kongsberg filed *ex parte* comments in reply.<sup>13</sup>

5. *Discussion.* Section 1.925 of the Commission's rules provides that we may grant a waiver if it is shown that (a) the underlying purpose of the rule(s) would not be served or would be frustrated by application to the instant case, and grant of the requested waiver would be in the public interest; or (b) in light of unique or unusual circumstances, application of the rule(s) would be inequitable, unduly burdensome, or contrary to the public interest, or the applicant has no reasonable alternative.<sup>14</sup> For the reasons set forth below, we conclude that Kongsberg has not met the waiver standard.

6. First, with regard to the 5460-5660 MHz band, we note that International Telecommunication Union Resolution 229 (Rev. WRC-12) restricts wireless access systems in the 5470-5725 MHz band to an EIRP of one watt in order to protect existing services in the band.<sup>15</sup> Kongsberg's

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<sup>7</sup> Specifically, the 5460-5470 MHz band is allocated on a primary basis for non-Federal radionavigation, and on a secondary basis to the non-Federal Earth exploration-satellite, radiolocation, and space research (active) services; the 5470-5570 MHz and 5570-5600 MHz bands are allocated on a primary basis for non-Federal radiolocation and marine radionavigation, with the 5470-5570 MHz band also allocated on a secondary basis for the non-Federal exploration-satellite and space research (active) services; and the 5600-5650 MHz band is allocated on a primary basis for non-Federal meteorological aids, radiolocation, and maritime radionavigation. All of these bands, as well as the 5650-5660 MHz band, also are allocated on a co-primary basis for Federal use of these services. 47 CFR § 2.106.

<sup>8</sup> 47 CFR § 80.375(d).

<sup>9</sup> It also is allocated for secondary non-Federal amateur operations, as well as co-primary Federal radiolocation. 47 CFR § 2.106.

<sup>10</sup> 47 CFR §§ 90.371, 95.3101.

<sup>11</sup> See *Wireless Telecommunications Bureau Seeks Comment on Kongsberg Seatex AS Request for Waiver to Permit Certification and Use of Maritime Broadband Radio*, Public Notice, 31 FCC Rcd 13333 (WTB MD 2016).

<sup>12</sup> Association of Global Automakers, Inc. and the Alliance of Automobile Manufacturers Comments (Comments).

<sup>13</sup> Kongsberg *Ex Parte* Comments (*Ex Parte* Comments).

<sup>14</sup> 47 CFR § 1.925(b)(3); see also *WAIT Radio v. FCC*, 418 F.2d 1153, 1159 (D.C. Cir. 1969).

<sup>15</sup> See Resolution 229 [COM5/16] (rev. WRC-12), "Use of the bands 5 150-5 250, 5 250-5 350 MHz and 5 470-5 725 MHz by the mobile service for the implementation of wireless access systems including radio local area networks," *considering h, k, resolves 6*.

proposed maximum EIRP of 60 dBm equates to 1000 watts,<sup>16</sup> which far exceeds this limit.<sup>17</sup> We also note that aircraft operate airborne weather radars in the 5460-5470 MHz band for storm avoidance. We conclude that it is not in the public interest to grant a waiver that could interfere with other services, especially safety-related services, so we deny the waiver for the 5460-5660 MHz band.

7. Second, we address the 5850-5925 MHz band. Kongsberg's waiver request discounts the possibility of interfering with DSRC because "[t]he MBR system will normally be used at a large distance from shore and a power-regulating algorithm in the system will secure that the lowest power possible for good communication is used," but provides no technical analysis of the interference potential.<sup>18</sup> The Commenters argue that without further analysis and information, Kongsberg has not demonstrated that MBR deployment would not cause harmful interference to present and future DSRC operations.<sup>19</sup> In response, Kongsberg asserts that the probability of interference from MBR is low because seaside roads typically have low line-of-sight distance and inland roads are protected by terrain, and the probability of MBR radiation pointing toward any particular point on land is less than 3%, so the probability of an MBR pointing at a vehicle in need of safety communications is very low.<sup>20</sup>

8. We agree with the Commenters that Kongsberg has not provided a sufficient technical showing that the MBR will not interfere with DSRC.<sup>21</sup> We note that, contrary to Kongsberg's vague assurances that interference is very unlikely, the Electronic Communications Committee (ECC) of the European Conference of Postal and Telecommunications Administrations concluded after Kongsberg filed its waiver request that for a road 160 meters above sea level, the minimum distance minimum distance to avoid interference to DSRC is 77 kilometers.<sup>22</sup> While this distance may vary depending on the terrain characteristics of the coastline and the height of the MBR antenna, we believe it would be difficult to impose and enforce such a restriction to MBR operations.<sup>23</sup> In addition, Kongsberg's proposed operating parameters exceed the EIRP recommended by the ECC for marine broadband systems to avoid harmful interference to other services in the 5850-5900 MHz band.<sup>24</sup> Given these concerns about interference in United States waters from a maritime device designed to operate under a European channel plan, we conclude that grant of the requested waiver would not be in the public interest for the

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<sup>16</sup> See, e.g., *Amendment of §§ 22.501(g)(2) and 94.65(a)(1) of the Rules and Regulations to Re-Channel the 900 MHz Multiple Address Frequencies, et al.*, Report and Order, 3 FCC Rcd 1564, 1569, para. 60 (1988).

<sup>17</sup> Kongsberg's proposed operations also exceed the permissible power level for the 5470-5725 MHz band under Harmonised European Standard ETSI EN 301 893 V2.1.1, para. 4.2.3.2.2 (2017-05).

<sup>18</sup> See Petition at 2.

<sup>19</sup> See Comments at 1-2.

<sup>20</sup> See *Ex Parte* Comments at 1.

<sup>21</sup> Comments at 2.

<sup>22</sup> See CEPT Electronic Communications Committee (ECC) Recommendation (17)03, "Guidance for the harmonised use and coordination of Maritime Broadband Radio (MBR) systems on board ships and off-shore platforms operating within the frequency bands 5852-5872 MHz and 5880-5900 MHz," at 9 (May 19, 2017).

<sup>23</sup> Indeed, we note that Kongsberg's experimental licenses for the MBR were granted for operations closer to shore than that.

<sup>24</sup> See *id.* at 4, 5 (recommending a maximum EIRP of 25 dBw for antennas using circular polarization and 22 dBw for antennas using linear polarization; the Kongsberg MBR's maximum EIRP is 30 dBw).

5850-5925 MHz band.<sup>25</sup> In addition, considering that there are ongoing studies at the Commission to determine the compatibility of Unlicensed National Information Infrastructure (U-NII) devices and DSRC,<sup>26</sup> we do not believe it would be prudent to authorize MBR operations in this band when issues of compatibility between U-NII devices and DSRC have yet to be resolved.

9. *Conclusion.* We conclude that Kongsberg Seatex AS has not shown good cause for waiver of parts 80 and 90 of the Commission's rules to permit equipment authorization and customer licensing for maritime broadband radio in the 5460-5660 MHz band or 5850-5925 MHz band. We therefore deny the waiver request.

10. Accordingly, IT IS ORDERED, pursuant to sections 4(i) and 303(i) of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i), 303(i), and section 1.925 of the Commission's rules, 47 CFR § 1.925, that the Request for Waiver filed by Kongsberg Seatex AS on November 9, 2016, IS DENIED.

11. This action is taken under delegated authority pursuant to sections 0.131 and 0.331 of the Commission's Rules, 47 CFR §§ 0.131, 0.331.

FEDERAL COMMUNICATIONS COMMISSION

Scot Stone  
Deputy Chief, Mobility Division  
Wireless Telecommunications Bureau

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<sup>25</sup> See *Whiffletree Corporation Inc.*, Order, 28 FCC Rcd 3231, 3232-33, para. 7 (WTB MD 2013) (denying waiver request to permit certification and use of maritime survivor locating device that transmits with 500 milliwatts of power on frequencies used in the United States for cellular telephone service).

<sup>26</sup> See *The Commission Seeks to Update and Refresh the Record in the "Unlicensed National Information Infrastructure (U-NII) Devices in the 5 GHz Band" Proceeding*, Public Notice, 31 FCC Rcd 6130 (2016).